REMARKS

In the above captioned application, the Examiner issued a Final Office Action with respect to the thirty-eight previously pending claims. In order to further prosecution, Applicants have canceled claims 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 and 38 without prejudice; amended claims 3, 5, 7, and 35; and added new claims 39 -54.

Claims 3 and 35 have been amended to indicate that the pigmentary base within each of those claims is an inorganic oxide. Support for this amendment may, for example, be found on page 4, lines 6 -8. Claims 5 and 7 have been amended in order to make them consistent with claim 3, the claim on which they depend. No new matter has been added by these amendments.

The new claims are directed to polymer matricies and methods for making polymer matricies that use inorganic oxides that are treated with the compounds of the specified formula and are combined with polymers that are suitable for plastics applications. In light of the prosecution to date, they are timely. No new matter has been added by the addition of the new claims.

New claim 39 is a new independent claim that is directed to a polymer matrix wherein the polymer is suitable for plastics applications and the pigment comprises a pigmentary base that is an inorganic oxide that has been treated with a compound of the specified formula. Support for this new claim may, for example, be found in the originally filed claim 3, as well as on page 3, line 22, page 4, lines 7-8, page 4, line 24 - page 5, line 6, and page 7 lines 19 -30 of the Specification.

New claim 40 depends on claim 39 and is directed to a polymer matrix wherein the pigmentary base is an inorganic oxide that is selected from the group consisting of titanium dioxide, kaolin, talc, mica and calcium carbonate. Support for this new claim may, for example, be found on page 4, lines 7-9 of the Specification.

New claim 41 depends on claim 39 and is directed to a polymer matrix in which the organo-acid phosphate compound is present in an amount from about 0.01 to about 5 percent by weight of the pigmentary base, based on the weight of the pigmentary base prior to treating the pigmentary base with the organo-acid phosphate compound. Support for this amendment may, for example, be found on page 5, lines 19 -20 of the Specification.

New claim 42 depends on claim 41 and is directed to a polymer matrix in which the amount of the pigment is from about 50 percent to about 85 percent by weight of the polymer matrix based on the weight of the polymer matrix. Support for this new claim may, for example, be found on page 8, lines 1-5 of the Specification.

New claim 43 depends on claim 39 and is directed to a polymer matrix wherein the polymer is polyethylene. Support for this new claim may, for example, be found on page 7, lines 23- 25 of the Specification.

New claim 44 depends on claim 43 and is directed to a polymer matrix wherein the pigmentary base is titanium dioxide. Support for this new claim may, for example, be found on page 4, lines 9 - 10 of the Specification.

New claim 45 is a new independent claim as is directed to a method for preparing a polymer matrix in which one combines a pigmentary base that is an inorganic oxide with an organo-acid phosphate to form a pigment. The pigment is in turn combined with a polymer that is suitable for plastics applications. Support for this new claim may, for example, be found in

originally filed claim 35, as well as on page 3, line 22, page 4 lines 7-8, page 4, line 24 - page 5, line 6, and page 7 lines 19 -30 of the Specification.

New claim 46 depends on claim 45 and is directed to a method for forming the polymer matrix wherein the polymer is polyethylene. Support for this new claim may, for example, be found on page 7, lines 23- 25 of the Specification.

New claim 47 depends on claim 46 and is directed to a method in which the pigmentary base is an inorganic oxide selected from the group consisting of titanium dioxide, kaolin, talc, mica and calcium carbonate. Support for this new claim may, for example, be found on page 4, lines 7-9 of the Specification.

New claim 48 depends on claim 47 and is directed to a method in which the pigmentary base is titanium dioxide. Support for this new claim may, for example, be found on page 4, lines 9 - 10 of the Specification.

New claim 49 depends on claim 48 and is directed to a method in which the organo-acid phosphate compound is present in an amount from about 0.01 to about 5 percent by weight of the pigmentary base, based on the weight of the pigmentary base prior to treating the pigmentary base with the organo-acid phosphate compound. Support for this amendment may, for example, be found on page 5, lines 19 -20 of the Specification.

New claim 50 depends on claim 49 and is directed to a method in which the amount of the pigment is from about 50 percent to about 85 percent by weight of the polymer matrix based on the weight of the polymer matrix. Support for this new claim may for example be found on page 8, lines 1-5 of the Specification.

New claim 51 depends on claim 39 and is directed to a polymer matrix in which within the organo-acid phosphate, the R group is selected from the group consisting of hexyl-, octyl- and ethylhexyl-. Support for this claim may, for example be found on page 5, lines 4 -6 of the Specification.

New claim 52 depends on claim 49 and is directed to a method for preparing a polymer matrix in which within the organo-acid phosphate, the R group is selected from the group consisting of hexyl-, octyl- and ethylhexyl-. Support for this claim may, for example be found on page 5, lines 4 -6 of the Specification.

New claim 53 is an independent claim that is directed to a polymer matrix and contains certain limitations of new claim 35, 41, 42 and specifies that the inorganic pigmentary base is titanium dioxide. Support for this amendment may, for example, be found in originally filed claim 3, and on page 5, lines 19 -20, page 8, lines 1-5 and page 4, lines 9 - 10 of the Specification.

New claim 54 depends on new claim 53 and specifies that the polymer is polyethylene. Support for this new claim may, for example, be found on page 7, lines 23- 25 of the Specification.

With respect to the outstanding rejections, Applicants respectfully request that the Examiner reconsider the previously submitted arguments, as well as the arguments provided below:

Response to Rejection of Claim 38 under 35 U.S.C. § 112

The Examiner rejects claim 38 under 35 U.S.C. § 112 as being indefinite. Applicants have canceled claim 38 without prejudice, and thus respectfully submit that this rejection is moot.

Response to Rejection of Claims 1- 7, 14 -29 and 34 -37 in light of DE 1234234

The Examiner rejects claims 1 -7, 14 -29 and 34 -37 in light of DE 1234234. Applicants have canceled claims 1, 2, 4, 6, 14, 16, 18, 20, 22, 24, 26, 28 and 34. Consequently, this rejection is only pending with respect to the claims that have not been canceled.

The Examiner maintains the reasons of record for rejecting these claims. The Examiner also indicates that it is his position that the added limitation of micronization does not render these claims patentable. Specifically, the Examiner contends: "The recited preamble 'micronized' has little probative value absent any particle size thereof." The Examiner also asserts that example 1 of DE 1234234 shows milling of the treated powder, which meets the instant micronization method, and that the third paragraph of page 1 of that reference teaches the suppression of forming aggregates. Applicants respectfully disagree with the Examiner's analysis of the cited reference.

First, Applicants submit that to a person skilled in the art, the requirement that a pigment be micronized would define the pigment in such a way that would render it significantly smaller than a pigment of the same chemical composition that has not been micronized and less coarse. Additionally, it would change the performance of the pigment when measured by parameters such as dispersibility as that parameter was measured in the examples of the present application. Thus, the term "micronized" is not meaningless and the composition claims that were rejected in light of this reference, claims 3, 5, 7, 15, 17, 19, 21, 23, 25, 27, and 29 are not anticipated or rendered obvious by DE 1234234.

Second, Applicants respectfully submit that the step disclosed in example 1 of DE 1234234 of milling the treated powder does not teach, disclose or otherwise suggest Applicants' step of micronizing in claims 35 -37. As noted in the *Encyclopedia of Chemical Processing and Design*, Vol. 50, John H. McKetta, Editor pp. 412 - 439 (1995), a person skilled in the art would

only consider using ball milling for products having a minimum size, for example 0.3 mm or 300 micrometers. Id. at Table 1, page 417. As this reference notes, ball milling is not suitable for very fine grinding and is not designed for fine grinding below 50 micrometers in size. Id. at 428 - 429. A copy of this reference is annexed to this Response as Exhibit A. By contrast, micronizing is particularly useful in preparing these smaller particles.

Third, the Examiner argues that DE 123234 teaches the suppression of forming aggregates. The portion of the reference that the Examiner cites, asserts that the addition of dispersants will facilitate the reduction of aggregates. If the addition of a dispersant were sufficient to reduce aggregates, then under the teachings of that reference, there would be neither a need nor a motivation to add a micronization step as is provided for in the claims that are the subject of this rejection.

However, in contrast to the teachings of the cited reference, Applicants have discovered that adding the surface treatment and micronizing provide for a particularly desirable product when evaluated by its dispersibility. Because according to the passage cited by the Examiner, the cited reference suggests that there is sufficient reduction in aggregates without a micronization step, it teaches away from the forming of micronized pigments and of micronzing pigments. Consequently, it does not teach, suggest or otherwise disclose Applicants' invention.

In light of the foregoing, and the arguments presented in Applicants' Response to the First Office Action, Applicants request that the Examiner reconsider the pending rejection based on DE 1234234 and withdraw it.

Response to Rejection of claims 1, 2, 4, 6, 8, 10, 12, 14, 20, 22, 24, 26, 28, 30 and 32 as unpatentable over U.S. Patent No. 5,397,391

The Examiner rejects claims 1, 2, 4, 6, 8, 10, 12, 14, 20, 22, 24, 26, 28, 30 and 32 as unpatentable over U.S. Patent no. 5,397,391 ("Stramel"). Applicants express no view as to the

Examiner's position at this time, but in the interest of furthering prosecution have canceled these claims without prejudice. Consequently, this rejection is moot.

Response to Rejection of claims 1 - 9, 14, 15, 20 -29 and 34 as unpatentable over U.S. Patent No. 5,876,493

The Examiner alleges that originally filed claims 1 - 9, 14, 15, 20 -29 and 34 are not patentable over U.S. Patent No. 5,876,493 ("Menovcik"). Applicants have canceled claims 1, 2, 4, 6, 8, 14, 20, 22, 24, 26, 28 and 34 without prejudice. Thus, Applicants respond to this rejection only as it applies to claims 3, 5, 7, 9, 15, 21, 23, 25, 27, and 29.

As with respect to the rejection under DE 1234234, the Examiner maintains the bases for rejection of record and argues that the term "micronized" as used in the preamble has little probative value. As discussed above, Applicants submit that to a person skilled in the art, a micronized pigment is a distinct moiety when compared to an unmicronized pigment of the same chemical composition. Thus, for the reasons stated above, as well as the arguments presented in Applicants' Response to the First Office Action, Applicants respectfully request reconsideration of all outstanding rejections of Menovcik over claims 3, 5, 7, 9, 15, 21, 23, 25, 27 and 29.

Further, even if the Examiner were to maintain that claims 3, 5, 7, 9, 15, 21, 23, 25, 27 and 29 were not patentable over the cited reference, claim 34 would nonetheless be patentable. The Examiner has not pointed to a step in Menovcik that teaches, suggests or otherwise discloses a micronization step. Consequently, this rejection should be withdrawn.

Response to Rejection of claims 1 - 29 and 32 - 38 as obvious over DE 1,234,234 in view of Stramel, Menovcik or Herget

The Examiner rejects claims 1 - 29 and 32 -38 as obvious over German Patent Application 1,234,234 in view of Stramel, Menovcik or Herget (U.S. Patent No. 6,270,563). As noted above, Applicants have canceled claims 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28,

34 and 38. Thus, this rejection is only pending with respect to claims 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29 and 35 -37.

The Examiner maintains the reasons of record, and reasserts his position that the term "micronized" has little probative value. For the reasons described above, as well as the arguments presented in Applicants' Response to the First Office Action, Applicants respectfully disagree with this position and respectfully request reconsideration of this rejection.

Response to Rejection of claims 1 - 3, 14 -31 and 34 -37 over U.S. Patent No. 5,466,482

The Examiner rejects claims 1 - 3, 14 - 31 and 34 -37 as anticipated by or, in the alternative as obvious over U.S. Patent No. 5,466,482 ("Johnson"). The Examiner maintains the reasons of record, and reasserts his position that the term micronized has little probative value. The Examiner does not assert that Johnson describes either forming a micronized pigment or the step of micronizing a pigment. Thus, for the reasons described above, as well as the reasons presented in Applicants' Response to the First Office Action, Applicants respectfully disagree with this position and respectfully request reconsideration of this rejection with respect to the claims that have not been canceled.

Further, Applicants have amended claims 3 and 35 such that the pigmentary bases described in those claims are defined as inorganic oxides. Johnson does not teach, disclose or otherwise suggest the use of inorganic oxides as pigmentary bases. Consequently, it does not anticipate or render obvious any of the pending claims.

Conclusion

Based on the foregoing amendments and arguments, Applicants respectfully submit that the outstanding rejections should be withdrawn and the pending claims are in condition for

allowance. The Examiner is invited to contact the undersigned attorney of record if he can be of assistance in furthering prosecution.

Because this response is timely, Applicants submit that no fee is due. If any fee is required, the United Patent & Trademark Office is hereby authorized to charge deposit account number 11-071 for such sum.

Respectfully submitted,

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: El-Shoubary, *et al.*

Docket No.: 13093

Application Serial No.: 09 723,098

Examiner: Tae H. Yoon

Filed: November 27, 2000

Group Art Unit: 1714

For: *"Organo-acid Phosphate Treated Pigments"*

Kalow & Springut LLP
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August 6, 2002

Commissioner for Patents
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Washington, DC 20231

MARKED UP CLAIMS PURSUANT TO 37 CFR § 1.121

Sir:

Pursuant to 37 C.F.R. § 1.121, a marked-up copy of each of the amended claims is attached. For the reasons identified in the accompanying Response, Applicants request that these amendments be entered and that all outstanding rejections be withdrawn.

Respectfully submitted,

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Certificate of Mailing Under 37 C.F.R. 1.8

I hereby declare that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Box AF, Washington D.C. 20231.

8/6/02
August 6, 2002

K Padilla
Kim Padilla

MARKED UP AMENDED CLAIMS

3. (Twice Amended) A micronized pigment comprising a pigmentary base that has been treated with an organo-acid phosphate compound having the formula:

$(R\text{-}O)_xPO(OH)_y$

wherein x = 1 or 2;

y = 3 – x; and

R is an organic group having from 2 to 22 carbon atoms,

wherein said pigmentary base comprises an inorganic oxide.

5. (Amended) A pigment according to claim **3**, wherein [the pigmentary base] **said inorganic oxide** is selected from the group **consisting** of titanium dioxide, kaolin, talc, mica and calcium carbonate.

7. (Amended) A pigment according to claim **5**, wherein the [pigmentary base] **inorganic oxide** is titanium dioxide.

35. (Twice Amended) A method for preparing a pigment, comprising combining a pigmentary base and an organo-acid phosphate compound, wherein the organo-acid phosphate compound has the formula:

$(R\text{-}O)_xPO(OH)_y$

wherein x = 1 or 2;

y = 3 – x; and

R is an organic group having from 2 to 22 carbon atoms**, and**

the pigmentary base comprises an inorganic oxide;

and micronizing said pigmentary base that has been combined with said organo-acid phosphate compound.